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**GUIDE TO THE LITERATURE OF CITIES: Abstracts And Bibliography**  
**Part 111: Urban Transportation**

Morris Zeitlin

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## GUIDE TO THE LITERATURE OF CITIES:

## ABSTRACTS AND BIBLIOGRAPHY

## PART III: URBAN TRANSPORTATION

by

Morris Zeitlin

## INTRODUCTION

No other urban factor has so influenced changes in the size and form of cities as development in transportation technology. Urban transportation and land use are closely linked. One affects the other, and their respective influences on cities -- good or ill -- depend on what the social order does with either or both. The combined misuse of land and abuse of transportation systems in American cities brutalized urban life and twisted metropolitan areas into grotesque forms.

Most urban transportation problems in major cities result from the lack of unified transportation planning and integrated use of transportation modes and facilities. Cars, busses, subways, commute railroads, parking facilities, highways, and airports, owned, operated, or controlled by different companies, individuals, and government agencies and poorly related in function and location, produce traffic jams, make for wasteful growth of metropolitan areas, and lower standards of urban life.

These consequences have sent scholars in search of solutions to transportation problems. Many concentrated on transportation itself, as though it were an independent entity, with the apparent notion that its malfunction is an internal problem which, once discovered, could be corrected by technical-administrative means.

Others, of broader vision, have looked at urban transportation in its relationship to other functional, economic, and political factors and identified it as essentially a socio-structural problem.

Above all, one thought dominates all writings on urban transportation: the dire implications to cities and urban life, and hence to the very social order, inherent in the increasing reliance on the private car and the atrophy of public transportation. A specter haunts most transportation experts: the fear that our obsession with individualism and personal freedoms is leading us to self destruction by automobiles whose proliferation gradually brings our circulation and movement to a grinding halt.

## URBAN TRANSPORTATION

## ABSTRACTS OF SELECTED WORKS

Blumenfeld, Hans. "Transportation in the Modern Metropolis." Journal of the Toronto Board of Trade, Vol. 53, No. 7, July 1962, pp. 4-7, 36; and No. 8, August 1962, pp. 4-7, 36. (Also in the Author's The Modern Metropolis: Its Origins, Growth, Characteristics, and Planning: Selected Essays by Hans Blumenfeld. The M.I.T. Press, 1967). A shorter version with the same title appeared in Queen's Quarterly, Vol. LXVII, No. 4, Winter 1961, pp. 640-653.

Blumenfeld examines the role of transportation in the growth of the metropolis -- the emerging new form of human settlement.

In the 19-th century, the "foot-and-hoof" transportation of persons, goods and messages limited the size of cities to a radius of three to four miles and crowded their factories and homes at high densities. By the end of the century, new means of transportation and communication expanded cities and set off the process of spatial division into the four basic land uses typical of the metropolis: the center (commercial, cultural and governmental establishments), industrial (manufacturing, storage, and transportation establishments), residential, and open space (largely recreational). "The spatial relations between these four basic land uses...determine the needs for intra-urban transportation, while the location of transportation facilities in turn determine the pattern of spatial distribution."

The metropolitan system of land uses and its internal transportation system, the author advises, should maximize mutual choice of jobs and works by maximizing commuting possibilities; but to save travel and cost, it should also minimize the need for travel. Metropolitan transportation must also move persons, going on business or recreational trips, to and from the periphery. Planning can reduce commuting by coordinating the location of work and home places, but cannot eliminate it. For in the choice of jobs and homes "many other motives are far stronger than the desire to minimize the journey to work."

The author briefly reviews the continuing shift, in the core, from activities dealing with goods to those dealing with people and discusses the problems that long-distance routes and terminals raise in metropolitan development. The problem of moving people, he notes, is the toughest of all. It stems from the way transportation modes are used, and chiefly from the growing displacement of public transportation by private cars. The latter continually reduce the passenger load of the former and force fare rises, poorer service and, hence, further passenger losses. Above all, the auto spreads low-density development in the metropolis which public transportation cannot serve for lack of "sufficient payload on any one line." Inevitably, the gradual atrophy of public transportation leads to growing reliance on the private car -- the least efficient mode of transportation.

Blumenfeld discusses the advantages and limitations of each transportation method; the role each must play in meeting different needs; the possibilities for combining the use of the several methods under varied geographic and rider-demand conditions; and the looming problems (and their possible solutions) as work, play, and shopping places continue to disperse in the metropolitan region.

In a cost-and-benefit analysis of public and private transportation, the author shows that the market considers only out-of-pocket costs and overlooks fixed costs and, therefore, irrationally allocates resources to each. Market fallacies must be exposed, he concludes, "in order to develop a comprehensive transportation system which allocates to each mode its appropriate role."

In a discussion of potentials and limitations of currently considered technological innovations, Blumenfeld sees no hope for a breakthrough that would "reverse the trend from public to private transportation."

Finally, discussing the interrelation between traffic and land uses, he criticizes recent traffic studies which assume land use as an independent variable and traffic as a dependent variable. "It is equally true," he argues, "that land use is a function of traffic" and is difficult to compute since the behavior of families and firms "is determined by many other independent variables in addition to accessibility." Under existing conditions, he warns, transportation planning cannot prevent sprawl. A land use pattern that may relieve traffic problems requires two measures: 1) Consistently applied controls over private development, and 2) publicly sponsored residential, industrial and commercial development.

Dyckman, John W. "Transportation in Cities." Scientific American, Vol. 213, No. 3, September 1965, pp. 163-174. Charts.

The author's chief observations and conclusions:

1. The transportation problems in Western-world metropolises are rooted "in the very nature of industrialization in an open society."
2. Urban transportation influences, and is influenced by, the location of land uses and the rhythm of their activities. Therefore, "traffic can be manipulated by controlling and rearranging the land uses."
3. The enormous increase, since 1945, in car commutation to and from work places has atrophied metropolitan transit systems. Fixed-rail transit systems could not collect passengers efficiently in a highly dispersed settlement pattern, deliver them to dispersed places of work, and do both in peak hours only. Most transit companies have either gone out of business or have been taken over by cities.

4. The highways are expanding cities much faster than the subways and railways did.
5. In the car versus transit controversy, many city planners, supported by downtown realtors and merchants, oppose new highways and car commutation for their destructive effects on downtown amenities. Others believe "the growth of urban population itself is likely to...rule out present modes of transportation."
6. Commuting-travel costs and convenience favor the car over rail transit. Also, the car is more adaptable and socially prestigious. In the face of this, city transportation policies have ranged between two extremes: from all-out accommodation of the car to banning it from the center of the city.
7. Greater accommodations for cars in cities have invited more traffic, reduced tax revenues, displaced many residents, incurred relocation and other costs, and polluted the air. This experience has reinforced public and governmental convictions that "measures to accommodate the demands of the automobile are approaching the limits of their effectiveness," and has led to greater support for strengthening the rail system.
8. "Coordinated development of highways and rail transit will be the hallmark of any forward-looking transportation plan.

Dyckman discusses in considerable detail the apparent limitations of the proposed San Francisco Bay Area rapid transit system.

Owen, Wilfred. The Metropolitan Transportation Problem. Washington, D.C.: The Brookings Institution, 1966 (Revised second edition. First edition in 1956). 266pp. Graphs. Charts. Tables. Extensive footnote references.

Urban transportation planning, argues Owen, is inseparable from urban planning as a whole. Viewing transportation as a separate problem confuses cities. They cannot decide whether to accommodate the automobile, modernize mass transit and restrict the car, or seek solutions in large-scale land-use reorganization.

The metropolitan traffic pattern is now irreversible, Owen thinks. Travel needs in the sprawling suburbs will continue to favor the car. The big cities, however, are not able to adapt to the auto. Sired by highway expansion, the traffic congestion in the center now seriously threatens the urban economy, while the rising use of private cars has shrunk the patronage of public transportation causing its decline.

In reality, argues Owen, urban transportation-demands present several different problems that vary in time, space, and purpose of travel. Weekday peak-hour travel differs from off-peak hour travel and from weekend and holiday peaks. Failure to see these differences and to plan and operate the transportation system as a unified whole, has resulted in wasteful use of facilities and poor service. Along high-density routes close to city centers, railroads serve best the peak-hour home-to-work travel. They should be modernized and expanded in the largest and oldest cities. For evening, weekend and holiday, social and recreational trips -- the second largest traffic volume -- private cars and buses offer a superior service. Railroads are futile in the sparse and scattered suburbs. There, flexible and cheap bus transportation must complement and supplement the universally used private car.

Owen advocates integration of all transportation facilities (including transit and commuter lines, taxi operations, expressways, highways, streets, parking and terminal stations, and traffic engineering schools) into one self supporting system under a single metropolitan administration that would set uniform standards for the entire geographical area. Three steps, he thinks, are needed to achieve this: (1) granting cities a fair share of state-controlled highway revenues; (2) a "scientific pricing of transportation services" to maximize revenues for a continuous upgrading of facilities; and (3) pooling of transportation revenues to support high standards of service in the entire transportation system.

But such integration, he cautions, can only begin the task. To achieve high standards of urban mobility it will be necessary to control the demand for transportation as well. Urban communities must be replanned and rebuilt to minimize needless transportation. The present chaotic land uses crowd too many people into too little space. Economic activities and people should be dispersed and land uses so planned as to enable people to live and work in the same areas, either close-in or on the periphery. Good transportation depends on rationally and comprehensively planned communities.

Owen appends twenty-three statistical tables germane to his subject and thesis.

Blumenfeld, Hans. "Experiments in Transportation -- for What?" Planning 1965: Yearbook of the American Society of Planning Officials, pp. 240-246. (Also in the author's The Modern Metropolis: Its Origins, Growth, Characteristics and Planning. Selected Essays. pp. 113-121. The M.I.T. Press, 1967).

Blumenfeld discusses the goals of transportation and the criteria by which the value of its modes may be judged.

Transportation aims to produce a freedom of choice in movement between points of origin and destination by saving either travel time or distance. Therefore, "land use planning and transportation planning are complementary."

Two opposing views clash in the debate on the future of metropolitan development. One regards urban land as a scarce public resource, advocates limitation of the urban periphery, urges a floor for residential densities, and renounces the maximum use of transportation technology. The other foresees and accepts the "spread city" and claims "that spatial relations -- and hence land-use planning -- are becoming irrelevant." Blumenfeld affirms the first.

Looking ahead, the author:

1. Expects foreseeable advances in communications (closed-circuit TV, long-distance computer control of automated plants) to replace some movement but not change "the desire for doing business face-to-face" in central business districts.
2. Discusses some possible changes in future intra-city transportation: moving energy and heat (electricity, hot water, steam) by wire and pipe instead of their sources (coal and oil) by truck, disposal of shredded refuse through pipes, and shipping packages via pneumatic tubes.
3. Identifies the problem of moving persons by public transportation: rather than increase speed, "make the total time from origin to destination competitive with that achieved by the door-to-door movement of the private automobile."
4. Discusses the difficulties public transportation faces in its competition with the car: stops and starts, getting to and from stops, moving people from low-density areas to dispersed nonresidential destinations.
4. Reviews various proposed transportation solutions and shows their limitations.

The author sees no clear answer to the present transportation problems in the modern metropolis.

Richards, Brian. New Movement in Cities. New York: Reinhold Publishing Corporation, 1966. 95pp. Profusely illustrated. Photos. Drawings. Plans. Diagrams.

Richards reviews transportation methods proposed over the last 100 years. He discusses their possible use today, their advantages and disadvantages, comparative capacities, and costs.

The future forms of urban areas, he notes, are being shaped by the basic transport assumptions government, developers, and planners make today. The major role assigned to the use of private cars is especially crucial. Fully motorized yet liveable cities are possible, and where a country's economy is tied to the motor industry they may be inevitable. But they will be costly, spread out, and must allot much land to roads and garages. A balance can be struck, however, between public and private transport -- a more valid solution in densely populated areas.

Richards cites the design and organization difficulties of integrating high-speed long-distance with local transport systems in various urban situations. In today's cities, he states, the greatest transport problem is moving more people over short distances to easily accessible destinations, continuously and conveniently.

In the public's interests as well as their own, the author believes, commercial property owners should be made to cede needed rights-of-way through their land and buildings.

Ritter, Paul. Planning for Man and Motor. Oxford: Pergamon Press, Ltd., 1964. 384pp. Profusely illustrated. Photos. Plans. Maps. Drawings. Sketches. Diagrams. Tables. Charts. Extensive bibliography.

A comprehensive and systematic survey of traffic separation in 17 British new towns, 33 urban renewal areas, and 46 residential areas in 20 different countries. The book offers traffic planning principles as it analyzes the nature and needs of man and vehicle. Ritter considers the physical, ecological, sociological, and psychological aspects of the man-car relationship and urges a rational arrangement of vehicular and pedestrian movement.

Among the authors comments:

1. Planners overstress the need for privacy in residential areas. Finding privacy is more a problem within the home. Within the community it is far more important to plan for social contact and cooperation, for on the ability to cooperate depends the further development of man.



2. The automobile age demands selective and rational use of cars in harmony with the needs of man, and a wide citizen involvement in planning and in controlling the human environment. The needs and functions of man and motor must be assessed in the context of each environment.
3. The key to planning in existing urban areas lies in providing more and better public transport systems such as separate roads for buses, self-guided bus trains, and monorails.
4. In the century of the common man, planning must benefit all. It is reasonable to expect that an affluent society spend ever more, per person, on human environment and welfare.
5. Sociology cannot adequately guide planning for a good environment for it "excludes value judgments and therefore also recommendations for design.... The scientific method limits itself unnecessarily to the isolation of factors and their analysis (and excludes) the subjective element of the experimenter." Planning the human environment requires social experiment and the dynamic participation of the experimenters. "The theory...that people ought not to know that they are part of an experiment, is pathetically ineffective and dangerous...(their) very awareness is a powerful aid to success." The planner must desire and strive for the good environment he is planning with all his being. "It takes the whole man... not only the objective philosopher in each of us, to take properly into consideration functional and ethical implications, imagination, aspirations."

Smerk, George M. Urban Transportation: The Federal Role.  
 Bloomington, Indiana: Indiana University Press, 1965.  
 336pp. Tables. Charts. Selected bibliography.

The work sums up and analyzes for the general reader the causes and possible solutions of the varied problems of urban transportation, and examines the role the federal government has played in this field.

The author first traces the roots of urban transportation problems; examines the affect of transportation development on the growth and forms of cities; explains how changed patterns of urban living, increasing dependence on the private car, and the decline of public transportation led to the current urban transportation troubles; and critically analyzes the personal, social, and economic costs of traffic congestion. He then discusses the role of local, state and federal governments and the nature and extent of federal aids; explains the various possible solutions such as alternative modes of transportation, traffic regulatory systems, the development of new urban centers, pricing schemes, subsidies and free transportation, and the utility of cost-benefit analysis in transportation planning. He finally suggests a tentative program of federal remedial action toward

achieving coordination of local, state and federal resources in facing and solving the urban transportation problem.

Owen, Wilfred. Strategy for Mobility. Washington, D.C.: The Brookings Institution, 1964. 249pp. Tables. Bibliography.

A study of transport (rail, highway, air, water and pipeline) and its role in the total environment of developing countries and regions. It aims to help guide the allocation of resources in emerging economies, shed light on scientific and technological possibilities in solving transport problems, and determine effective means of implementing transport programs. The principal questions Owen considers are "how transport influences development, how the obstacles imposed by poor transport can be reduced, and how improved transport can further economic, social and cultural ends."

Some of Owen's observations:

1. Transport affects every aspect of economic and social development. The poverty of underdeveloped areas is related to their lack of mobility.
2. The transport systems in most undeveloped countries were "deliberately designed (by colonial powers) to meet military requirements and to foster export... (of raw materials. They) tapped the hinterlands, converged on the principal ports, and avoided connections with other countries. Today these railways often prove ill-suited to the needs of both internal and regional development.... Different gauges adopted... to discourage trade among rival states result in high costs, transshipment delays, and frustration of potential economic integration with neighboring countries."
3. The importance of transport "is derived from other (economic) goals it is designed to serve. Transport is not a separate sector of the economy, but a web of communications that joins other sectors together."

Reviewing the 100-year old history of transport in the United States, France and Germany, Owen perceives five overlapping stages of development in which advances in transport and standards of living are related: (1) primitive transport, (2) development of turnpikes and canals, (3) mechanization and industrialization (steamships and railways), (4) motorization (trucks, buses, automobiles and networks of all-weather roads), (5) air transport -- the conquest of distance. The developing countries, he believes, having access to advanced technology and resort to national planning, could speed the slow evolution in transport improvement the advanced countries had endured.

Examining transport planning problems, Owen urges rational planning of transport within the total context of national and regional economic and social goals. "It is impractical to lay out a program for transport," says he, "unless economic trends and objectives are known and translated into transport demand. Then the attempt can be made to determine how much transport is called for, where it is needed, and what kind it should be."

The author analyzes the effects of poor and good transport; describes modern transport means; advises on their proper use under different historical, political, topographic, resource, and economic development conditions; and indicates science and technology potentials and the importance of research, invention and experimentation.

Owen shows why underdeveloped nations "need help from the outside." He appraises western (chiefly United States) foreign aid, notes that its "vision and wisdom...has been less than spectacular," warns that "the rich as well as the poor countries have a stake in the results," and advocates international aid under United Nations sponsorship.

The appended sixteen tables cite statistics on highway expenditures, motor vehicles, freight and passenger traffic, planned transport investment, railways, and transport financing in many countries.

Wheeler, George Shaw. "The Crisis in Transport." Political Affairs, Vol. XLIV, No. 7, 1965, pp. 20-34.

The severe urban transport problems in the United States, thinks Wheeler, threaten its economy and cultural life. The roots of these problems "lie in the inherent characteristics of the automobile and the archaic operation of the capitalist economy. The conflict between the increasingly social character of transport...and its private ownership" is the major cause of central-city decay and of the wasteful low-density sprawl of metropolitan populations over racially segregated and culturally dull communities.

The popularity of the private car boosted highway-related industries and created politically powerful entrepreneurs who succeeded in orienting government urban policy to favor the auto at the expense of public transport and low-density small-house over high-density apartment-house development. The resulting urban problems raised pressures in metropolitan areas for high-rise housing and revival of rapid transit systems. Now, however, it will be far more costly and less efficient to alter the haphazard individualistic metropolitan pattern the automobile has created "with a better balance of social transport than if there had been an emphasis on social needs as the city developed."

Transportation reforms, however, cannot, by themselves, assure the economic and cultural development of a metropolis as long as "many of the most essential decisions remain with the private entrepreneurs, and these can often find their highest profit by ignoring social needs."

Wheeler concludes that "' comprehensive planning ' and rational use of resources can take place only when they are socially owned and operated...under capitalism it is the function of the market to make such allocations. (But the market fails to make them) in a manner that is rational from the social point of view because of the sharp contradictions between the private interests of the capitalists and...social goals. The failure to recognize this conflict lies at the basis of much of the confusion and frustration of those who deal with city transport in the United States today."

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A short review and analysis of technological progress in modes of ground, water, and air transportation.

Committee on Urban Transportation, American Institute of Planners. Urban Freeways. New York: The American Transit Association, 1947. 32pp. Illustrated. Photos. Drawings. Charts. Selected bibliography.

A collection of published statements on urban highways.

Hoover, Edgar M. "Motor Metropolis: Some Observations on Urban Transportation in America." The Journal of Industrial Economics, Vol. XIII, No. 3, June 1965, pp. 177-192.

Discusses the interrelation between the mass use of private cars and metropolitan sprawl.

Labatut, Jean and Lane (Editors). Highways in Our National Life: A Symposium. Princeton, New Jersey: Princeton University Press, 1950. 506pp. Illustrated. Photos. Drawings. Maps. Tables. Bibliography.

Forty-four essays by highway experts on: highway history; its contemporary forms, functions, and social, economic, and legal aspects; the techniques and art of highway design and operation.

Martin, Brian V., Frederick W. Memmott, and Alexander J. Bone. Principles and Techniques of Predicting Future Demand for Urban Area Transportation. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press, 1965. 214pp.

A textbook. Treats transportation planning as a total process integrating the interacting elements of the urban environment.

Ogburn, W. F. "Inventions of Local Transportation and the Pattern of Cities." Social Forces, Vol. 24, No. 4, May 1946, pp. 373-379.

Considers the decentralizing influence of transportation on cities and its significance to human ecology in the atomic age.

Pell, Claiborne. Megalopolis Unbound: The Supercity and the Transportation of Tomorrow. New York: Frederick A. Praeger, 1966. 233pp. Illustrated. Photos. Bibliography.

A politician's view of transportation problems. Deals mainly with intercity railroad transportation and with federal railroad legislation.

Smerk, George M. (Editor). Readings in Urban Transportation. Bloomington, Indiana: Indiana University Press, 1968. 336pp. Tables. Charts.

Discusses some reasons and some proposed solutions to the urban transportation problems.

United States Department of Transportation, Federal Highway Administration. The Freeways in the City. U. S. Government Printing Office, 1968. 141pp. Profusely illustrated. Photos. Drawings. Specific recommendations for planning, locating, designing, and building highways through and between cities.

Wolfe, Roy I. Transportation and Politics. Princeton, New Jersey: D. Van Nostrand Co., Inc., 1963. 136pp. Maps. Bibliography.

A geographer's discussion of transportation principles in historical perspective. Demonstrates the problems that sophisticated transportation systems create for the primitive political systems of modern states.

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